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Information Item

2017 Water Year in Review

Summary: The Council will receive its annual report on water conditions for the 2017 Water Year (WY) from the California Department of Water Resources (DWR) and the California Department of Fish and Wildlife (DFW) to hear how conditions impacted water operations and the Delta environment.

Background

Variability in the flow and volume of water is strongly linked to the viability and health of the Sacramento-San Joaquin Delta and its environment. Over the past several years, the Council has received annual briefings on past water year supply conditions to better understand how the varying effects have impacted water and environmental management decisions.

The main focus of recent annual briefings has been related to drought conditions and drought management actions. The extended drought produced chronic and significant shortages to municipal and industrial, environmental, agricultural, and wildlife refuge water supplies that led to historically low groundwater levels. The dry weather conditions resulted in many new statewide records, including:

- Driest four-year period of statewide precipitation (2012 – 2015);
- Warmest two-year period for the Sacramento Valley (2014 – 2015); and
- Smallest and second smallest Sierra Nevada snowpack (2014 - 25 percent of average; 2015 - 5 percent of average) since records have been kept, and by some estimates, based on tree-ring analysis, the lowest over the past five centuries (DWR, 2016).

The 2017 WY, however, began with a wet October and continued with a wet winter, breaking the drought cycle with a record-year for wet conditions. Precipitation did not return to normal conditions until around April and May of 2017, as recorded:

- North Sierra 8-station index was the wettest precipitation year with 94.7 inches;
- San Joaquin 5-station index was the second wettest precipitation year with 77.4 inches; and
- Most of the State's reservoir levels were at or above each reservoirs' historical average, by March 1, 2017.

This much precipitation also led to challenges to existing flood control infrastructure and flood conditions downstream:

- In February 2017, with the reservoir at flood capacity, a large forecasted storm threatened to overtop Oroville dam. In response, DWR released flows, but erosion to the spillway caused a break and sent debris downstream where Butte County and Oroville evacuated. As reservoir levels dropped by releases down the compromised spillway, the threat of overtopping subsided. DWR is in emergency operations to repair the facilities and prepare for the 2018 WY.
- Delta levees were also compromised on Tyler Island, Van Sickle Island, and Grizzly Island by either breeching or over topping caused by local flooding to those islands.

While the "weather whiplash", or the extreme shifting from drought conditions to a period of heavy precipitation resulted in larger system-wide effects, there were some notable benefits of the wet 2017 WY:

- Most of the State's reservoirs, except for Oroville, have been at their historical capacity averages and beyond;
- Reduced demand for water supply, which resulted in a decreased need for water transfers; and
- Lifting of the Governor's Executive Order for mandatory conservation.

While predictions for 2018 WY are still being developed, forecasts suggest the following conditions will be likely:

- La Nina conditions for the wet fall/winter season, but without La Nina conditions, there is an equal chance of an average winter in terms of snow; and
- Temperatures are likely above historic averages.

Today's Briefing

Today's briefing will include an overview of the 2017 WY; State Water Project (SWP) water operations; a discussion of some of the challenges and tradeoffs in balancing water supply for municipal, industrial, environmental, and agricultural needs; an overview of the actions taken at Oroville Dam; and discussion of the outlook for the 2018 WY.

The panel of experts includes:

- John Leahigh, chief of DWR's State Water Project Water Operations Office; and
- Carl Wilcox, policy advisor on the Delta for DFW.

The Council may wish to consider the following questions during this presentation:

- How is the SWP able to reap the benefits of such a wet water year and store, save, or keep carryover water available for the future?
- How much more of the benefits of a wet water year would be reaped if there were improvements to Delta conveyance only, or would improvements in storage also be needed?

- Is there enough data collected to detect how well Delta species are reacting or rebounding to improved wet conditions from such a wet water year?

Fiscal Information

Not applicable.

List of Attachments

None.

Contact

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